



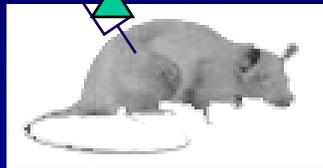
## **The Antibody Bank of Human Liver Proteome Project**

**Establishment, characterization, and application of antibodies against human liver proteins**

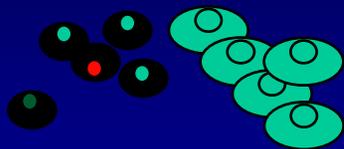
**Qi-Hong Sun**

**Beijing Institute of Radiation Medicine (BIRM)  
Beijing Proteome Research Center (BPRC)**

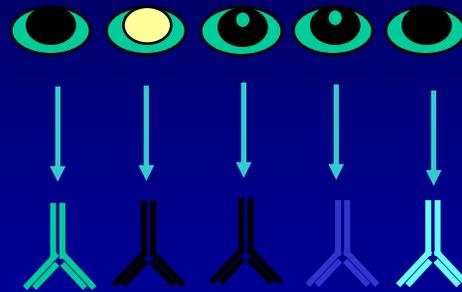
Antigens



Myeloma cells



Hybridoma cells



Profiling

Identification

Quantification

Localization

Modification

Interaction

Function

mAbs

Proteomics Research

Diagnostics

Therapeutics

Large antibody collection

for proteomics

**PHYSIOME**

**PATHOME**

Database

Antibody  
Bank

Specimen  
Bank

# HLPP Scientific Objectives

Localization  
Map

Linkage  
Map

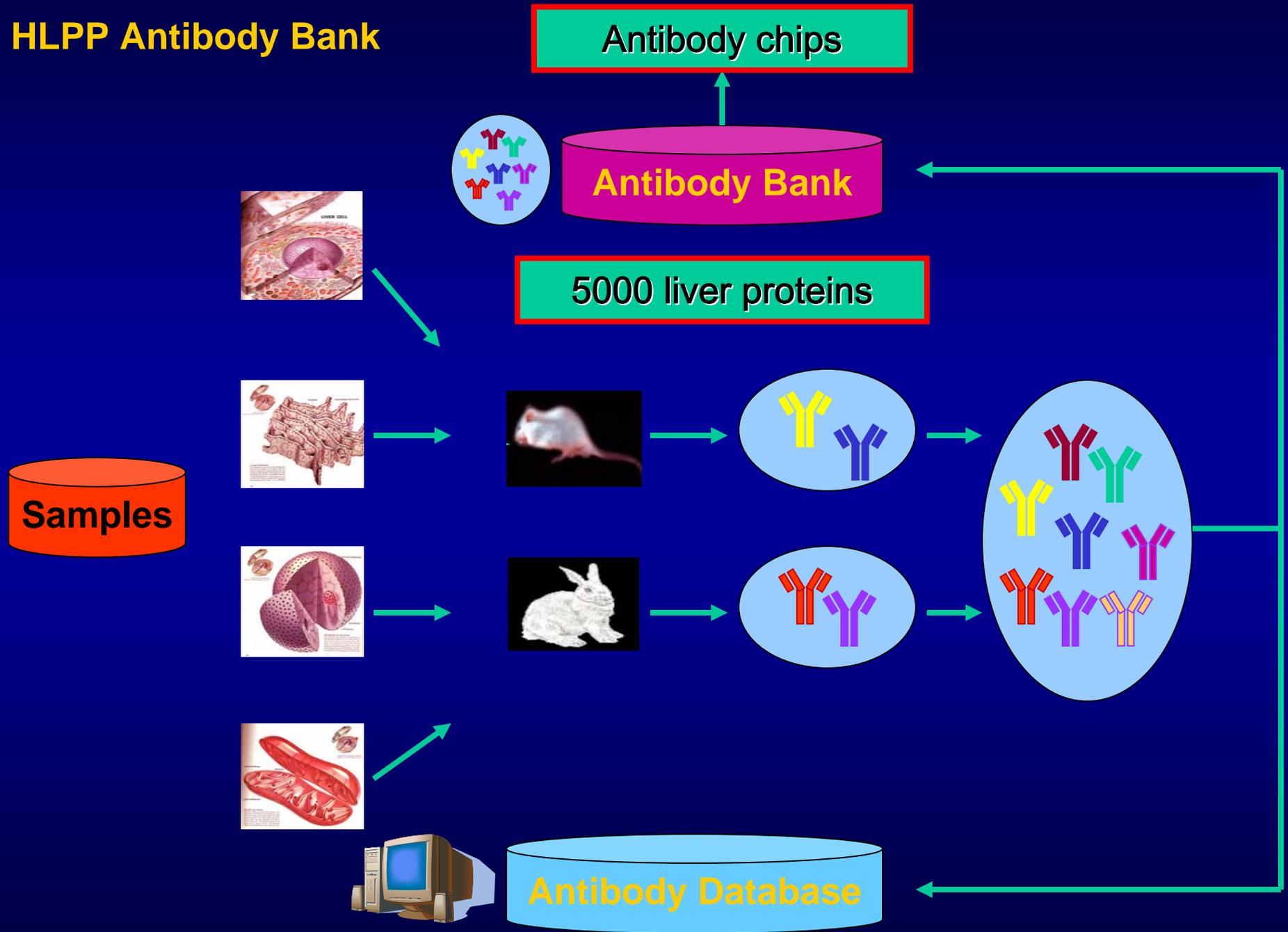
Expression  
Profile

Modification  
Profile

ORFeome



# HLPP Antibody Bank



## **Strategies for antibody generation**

**Mixed protein antigens - Monoclonal antibodies (mAbs)**

**Expressed/purified protein antigens - mAbs and pAbs**

**Synthetic peptide antigens - polyclonal antibodies (pAbs)**

# **LINKS WITH THE OTHER HUPO WORKING GROUPS**

**HUMAN LIVER PROTEOME PROJECT (HLPP)**

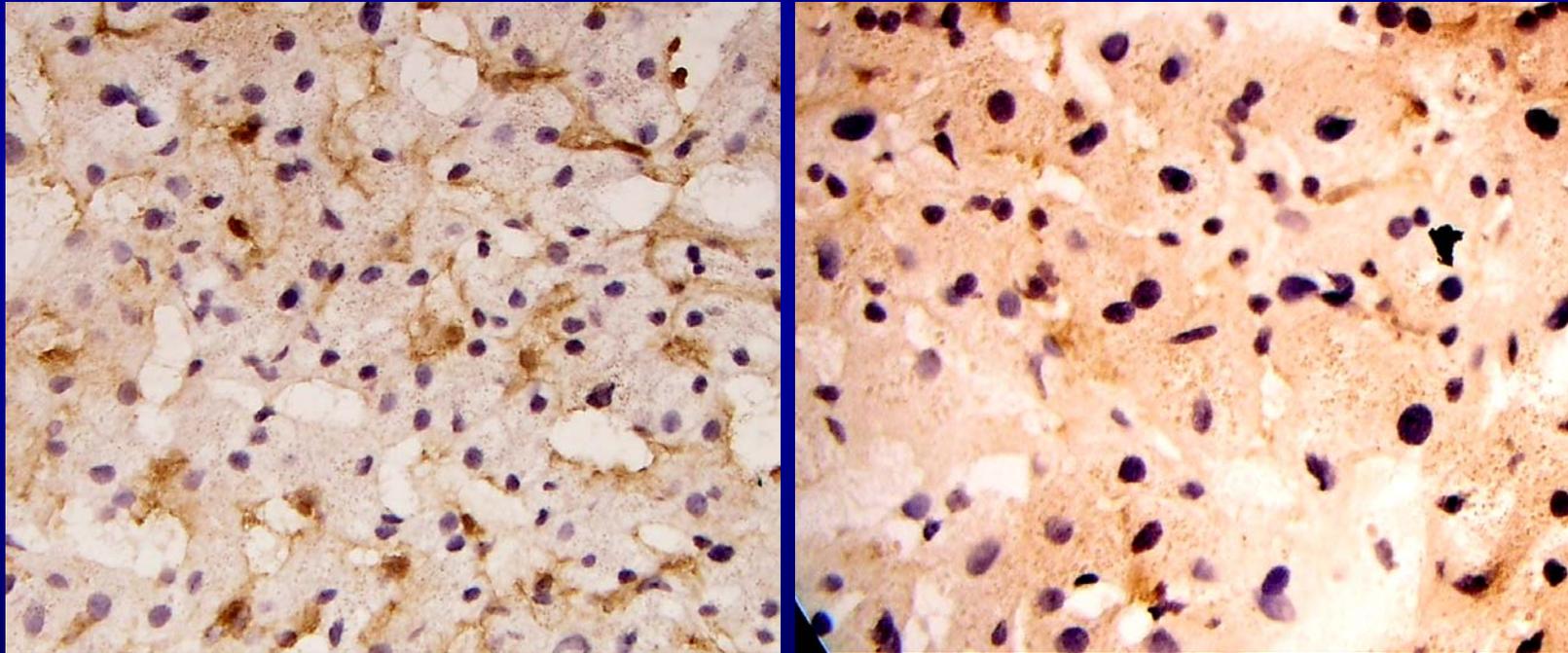
**HUMAN PLASMA PROTEOME PROJECT (HPPP)**

**HUMAN BRAIN PROTEOME PROJECT (HBPP)**

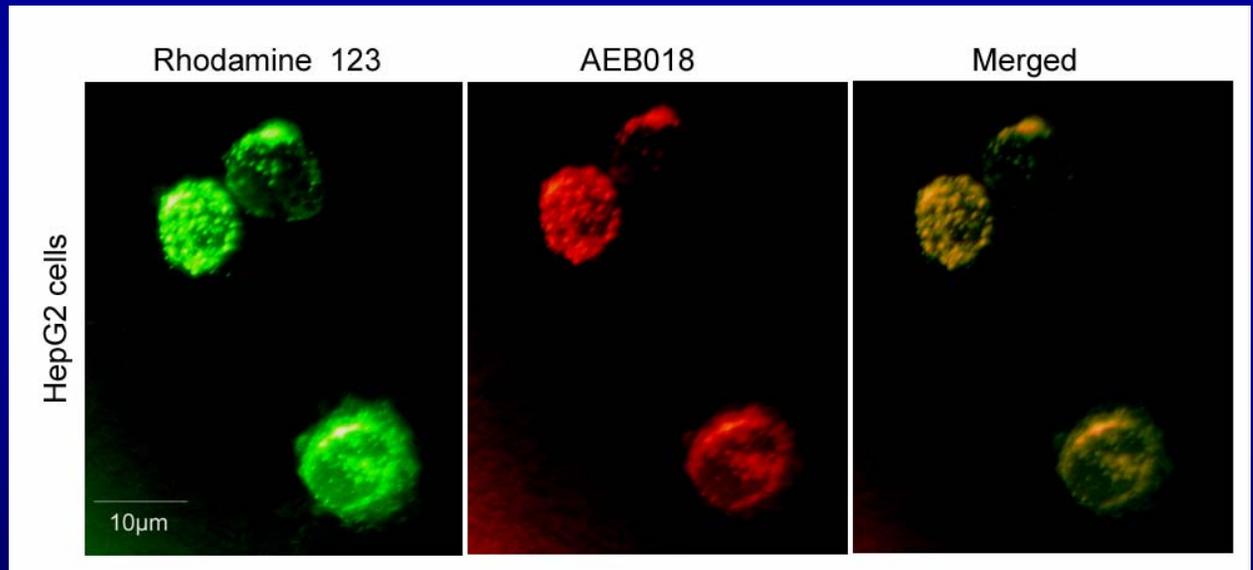
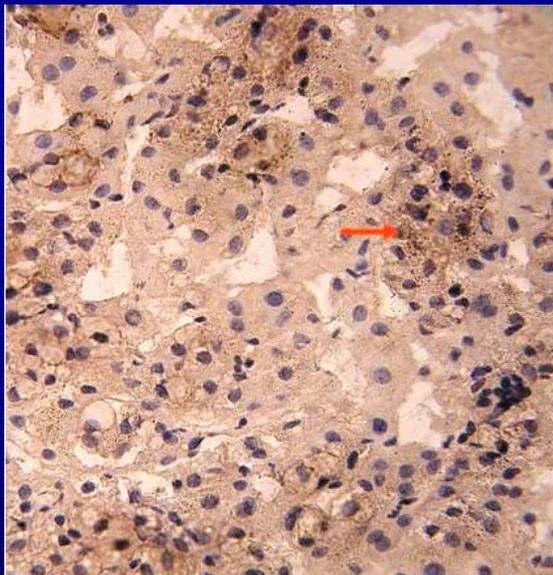
**Bioinformatics (PSI) – Antibody database**

**Antibodies – HUPO Antibody Initiative (HAI)**

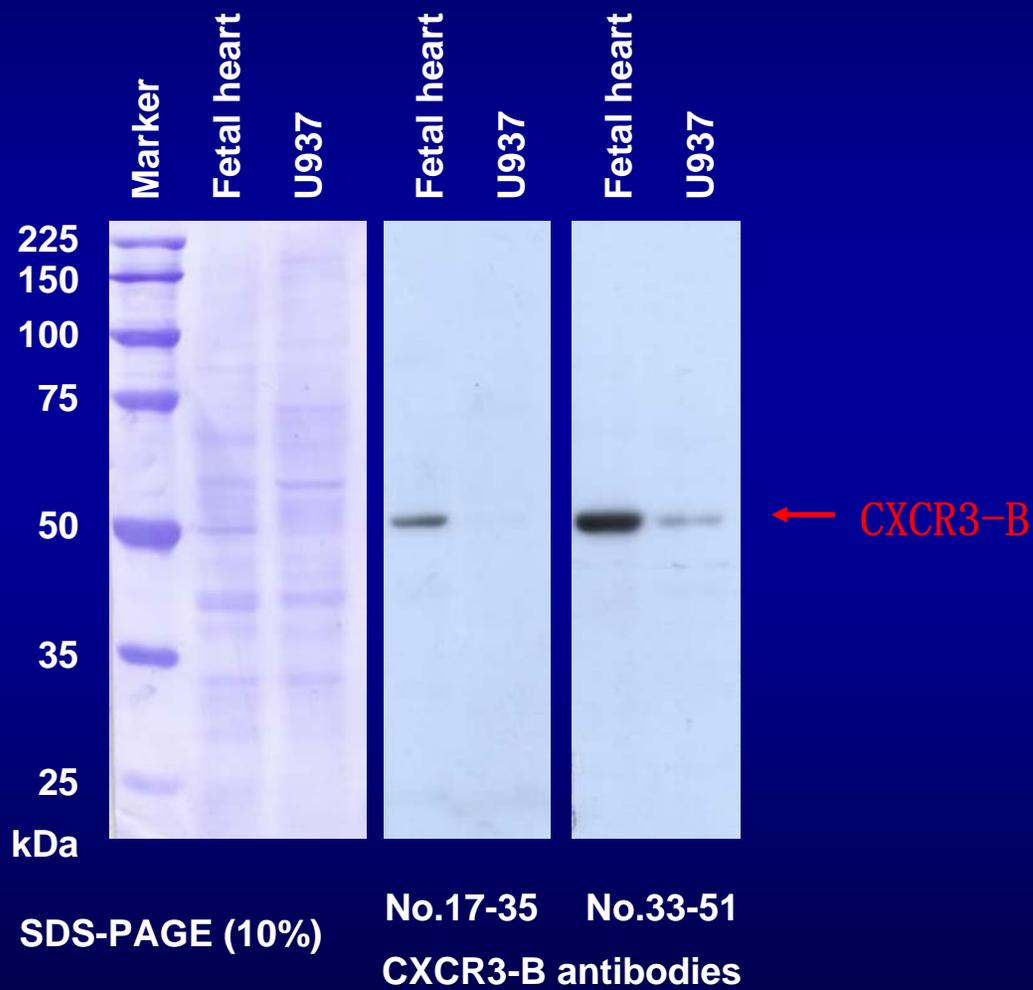
Monoclonal antibody generated using  
**recombinant protein LSEctin** as the immunogen



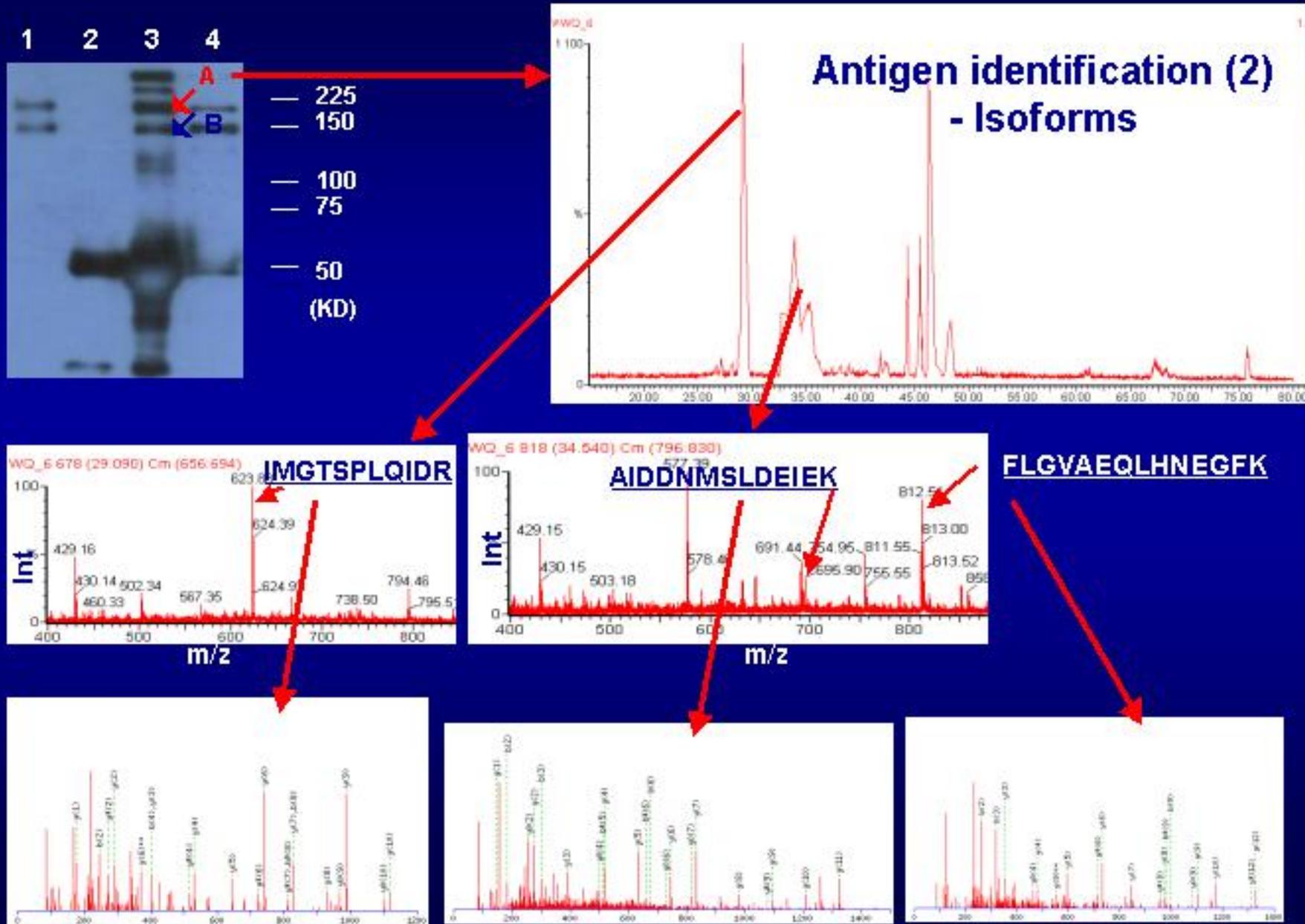
# AEB018 mAb recognized mitochondria in hepatocytes



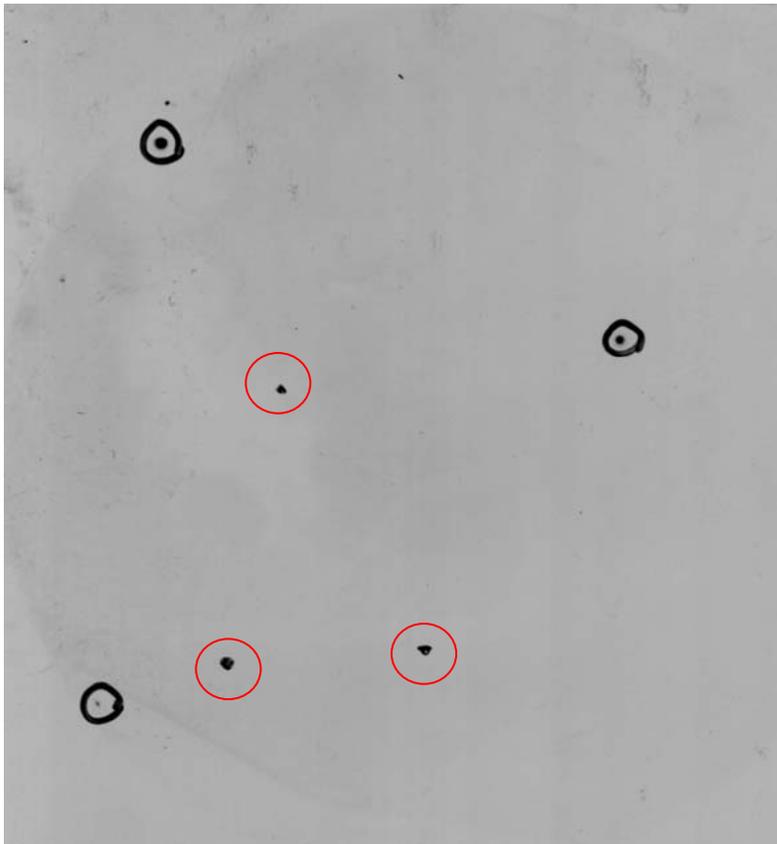
# CXCR-3B peptides used for immunization



# Identification of CPSM recognized by BEH045 mAb (A)



# Antigen identification by screening human liver cDNA expression library



ACH093 Positive clone	Blast results
3-1	Hemoglobin alpha2
3-2	Immunoglobulin gamma heavy chain
3-3	Error ORF
3-5	Hemoglobin alpha2

# Progress summary of HLPP Antibody Banking Project

## Antigen preparation for immunization

Fractionated liver proteins – nucleus, membrane, microsome, mitochondrial, cytosolic, and plasma proteins

Purified recombinant protein antigens – 215

Synthesized peptides from liver-specific proteins – 44

## Antibody preparation and characterization

Established hybridoma cell lines – 1085

Characterized mAbs – 862 for more than 100 different proteins

Rabbit pAbs – 50

## Antibody Application

Depletion of high-abundant proteins

Immunohistochemistry

Isolation of protein complexes

## **National Labs of HLPP Antibody Banking (China):**

**Qi-Hong Sun/Jianen Gao, Ming Li, Min Zhao, Daling Zhu, Chaoneng Ji, Gang Cheng, Zhinan Chen, Boquan Jing, Jian Wang/Lin Wu, Xiaoning Wang/Ying Lin, Zheng Li, Jinliang Yang, and Jie Tang.**

## **International collaboration:**

**HUPO-HAI (Dr. Uhlen)**

**FHCRC/NCI-IBDC (Dr. Lee)**

**German Systems Biology Project (Dr. Meyer)**

**Epitomics (Guo-Liang Yu)**

